

two baskets of beans and corn. Most old men knew how to spin 431
cotton on the thigh and the purchaser's family might spin it or 437
call in the neighbors for a working bee, giving them their meals 286
meanwhile. If they brought raw cotton to the weaver, he got it 887
spun in the same way. The chief articles made were large blankets
to sleep on and narrower strips for womens' skirts. For the large
blankets the price was a horse or its equivalent in produce or
buckakin. The skirt the woman bought, herself, with a good willow
basket of her own make.

Plaited baskets, plaited mats, netted carrying baskets and pots 431
were made by elderly women, too old for the heavy work of corn 437
grinding and food gathering. They were not such expensive articles 285
as skins and cloth, an olla being worth enough beans or corn to fill 887
two basket bowls while for a mat the measure was a winnowing 323 ●
bowl.

But besides this exchange among themselves, some Papago made 439
a business of trading trips to the Pima, to Mexico and to the Yuma.
These were a winter occupation on the same basis as hunting and
sometimes combined with it. The Papago were homeless in the
winter and many of them, instead of camping at the Well village
wandered about trading their goods or their labor for enough to
support them until the wet season came again.

Russell gives a list of the goods which the Papago, supposedly so
poor, managed to get together for trade with the Pima. It includes
giant cactus seeds, cholla fruit, agave fruit in roasted cakes and
syrup, Reat (wild potato), wild gourd seeds, small peppers, acorns
from the Bellota oak, prickly pear syrup, baskets of agave leaf,
sleeping mats, carrying baskets and fibre to make them, maguey
fibre for picket lines, dried meat of deer, mountain sheep and cows
tallow deer and beef, ... cheese, buckskin, livestock, red and
yellow ochre, buff-colored ochre for baskets, salt.¹ What they
wanted in return was food, principally wheat, which they themselves
raised only in small quantities. But frequently their price was corn
and beans enough to keep them alive. The people who used this
expedient came from the northern villages, the Archie and Kuhatk
groups and Káka, who were the Pimas' nearest neighbors. They
often had relatives in the Pima country or at least friends and they
pursued their exchange in the same manner they used at home.

The southern villages had their contacts with Mexico where they
took principally dressed skins, cooked mescal from the mountains
and their labor. They brought back knives and clothing and the
knowledge of a more advanced culture than was to be found on the

¹ Russell pp. 93-94.

Then the girls put the nets on their backs and if one was married and had a baby, she put that on top in its cradle board. Some men went with them with their war arrows because there were Apaches in the land then. They all went running, running. If they saw dust in the distance that they thought was Apaches, they went dodging behind the giant cactus. You see, women had to run in those days. That was what saved their lives. Many hours they had to run, and when they came back every family had two little jars of water to last for the day. But we did not mind. We knew how to use water. We have a word that means thirst-enduring and that is what we were taught to be. Why, our men, when they went off hunting, never drank at all. They thought it was womanish to carry water with them.

My brothers went running off, too. Ah, how we could run, we Desert People; all the morning until the sun was high, without once stopping! My brothers took their bows and arrows and went far off over the flat land.

"Run," my father said to them. "Run until you are exhausted. So you will be a strong man. If you fall down tired, far out in the waste land, perhaps a vision will come to you. Perhaps a hawk will visit you and teach you to be swift. Perhaps you will get a piece of the rainbow to carry on your shoulder so that no one can get near to you, any more than to the rainbow itself. Or maybe Coyote himself will sing you a song that has magic in it."

So they went off in their breechclouts and bare feet, running in the dark when they could hardly see the cactus joints on the ground and the horned toads—rattlesnakes there were not in that cool weather. One of my brothers did really have visions. The others used to come back without him, bringing jackrabbits for our dinner. The little boy would come in much later and never tell where he had been. But we found out long, long after, when he became a medicine man, that he had been lying dead out on the desert all those hours and that Coyote had come and talked to him.

When they were gone my mother would come crawling out. She went to the little enclosure beside our house, made of greasewood bushes piled up in a circle and she got the pot of gruel. We always kept gruel in our house. It was in a big clay pot that my mother had made. She ground up seeds into flour. Not wheat flour—we had no wheat. But all the wild seeds, the good pigweed and the wild grasses. And corn, too! Some summers we could grow corn. All those things my mother kept in beautiful jars in our storehouse. Every day she ground some more and added fresh flour to the gruel and some boiling water. That pot stood always ready so that whoever came in from running could have some. Oh, good that gruel was! I have

PEOPLE ON THE DESERT

but the summer storms come suddenly, the clouds pouring out water and then disappearing as quickly as they came. Rainfall varies greatly on different parts of the Reservation. In the southeastern districts where the mountains are highest, annual precipitation reaches an average of 18 inches in the mountains and about 13 inches in the valleys. Most of the permanent springs and the few small streams that flow for nine months in wet years are located in the foothills of this area. From the center of the Reservation westward, rainfall decreases progressively, averaging only 5 inches in Gu Vo District. Averages give no realistic picture, however, for years of good rainfall are often followed by years in which the washes do not flow at all. The year 1943, when the field work for this study was done, was one of extreme drought, perhaps the worst in history.

Temperature also fluctuates greatly. Winters are mild, with many sunny days, but sometimes the winds are raw and cold, and at night the thermometer may fall to 15° Fahrenheit. Sometimes snow falls on the higher mountains and may remain several days. The summer, from May through September, is extremely hot, with daytime temperatures usually exceeding 100° and often soaring to 120°. Daily range of temperature is wide; the average daily maximum and minimum are 82.5° and 51.1°—an average daily change of 31.4°.

Soils on the Reservation are generally of very good quality; lack of water is the prime factor limiting production. Hence the more arid western districts have a much lower proportion of farm lands and lower range carrying capacity than the central and eastern districts.

Like rainfall, vegetation varies with elevation. On the valley floors are miles and miles of cholla cactus and almost useless creosote bush,⁵ and along the washes the sturdy and useful mesquite thrives. In the eastern districts mesquite is the characteristic growth; in the western areas the creosote bush, and in some alkaline regions the saltbush, are the most common plants. Even the mesquite areas are not so useful for range lands as they once were. Until about 1900, these areas were largely covered with perennial bunch grasses which provided good forage and helped to retain the topsoil. With increasing numbers of livestock, these grasses disappeared and the common grasses now are annuals which for forage must be supplemented by mesquite, cholla, saltbush, bur sage, and palo verde. Loss of the perennial grasses has also permitted considerable soil erosion, although there is little gullying because the valleys are flat.

Where the valleys rise to the foothills, and continuing over most of the low ranges, palo verde, ironwood, and giant saguaro cactus are the main stands.

5. The creosote bush does furnish fat, a gum with which the Papago made pottery, and it has some medicinal uses. But animals will eat it only in an emergency.

7: Lumholtz N-5 (1909-1910) 1912

NU28 Papago NU28

● 323
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Height, 6.3 cm.



R. Weber

Height, 11.4 cm.

ANCIENT POTTERY VESSELS OF THE PAPAGUERIA. EXCAVATED BY PAPAGO
INDIANS NEAR FREMONT, ARIZONA

[Facing p. 170]

NOTES ON PAPAGO POTTERY MANUFACTURE AT
SANTA ROSA, ARIZONA

101 The Papagos occupy an extensive stretch of territory in the southern and southwestern portions of the state, south of the Pima. San Xavier, a small reservation, is situated near the city of Tucson; to the southwest lies the Sells area where the majority of the people live. Papago rancherias extend for a considerable distance into Sonora, [114] Mexico. Santa Rosa, where this study of the potter's craft was made in 1935, is the largest and most important village on the several reservations.

- 323 Pottery making, next to agriculture and stock raising, is probably the greatest industry among the Papagos. Technique as observed at the village of Santa Rosa is quite similar to that recorded by Russell¹ for the Pima, differing from it only in minor details.

317 Clay for the manufacture of pottery is of two types—a rather coarse red material
323 containing a large amount of hematite, and a finer-grained white clay. Both kinds are obtained from beds near Covered Wells, thirteen miles west of Santa Rosa. The material is first dried thoroughly by spreading it in the sun. As the red clay is mixed with small pebbles and fragments of broken rock, winnowing is necessary before it can be used. In former times, this was accomplished by tossing the material in a basket, but at present, it is sifted through a piece of screen.

- 323 Tools consist of containers for the clay and water, a curved wooden paddle, a large piece of cloth (later twisted to form a support for the vessels), an anvil (a small round stone), and several smoothing and polishing pebbles. In previous times, containers were baskets and pottery vessels; now these have been supplanted largely by burlap sacks for the clay and lard pails to hold the water.

The clay is first mixed with a little sand, then dried manure is added for a temper. Sufficient water is used to moisten the material thoroughly, and the whole mass is kneaded. The bottom of another vessel serves as a form. Ashes are smoothed over its surface to prevent the moist material from sticking. Taking a lump of clay about the size of her two fists, the potter pats and works it between the palms of her hands until it is formed into a flat disk. This is dusted with ashes, fitted over the form, and molded into shape with a smoothing stone, the material meanwhile being turned around and around with the hand. It is next removed, the form again dusted with ashes, and the clay replaced, then patted flat and even with the curved paddle. The hands are dipped into water and the surface smoothed all over. The bottoms of smaller pieces are shaped by hand, without the use of a form.

The base of the vessel now completed, the potter removes it from the form and sets it right side up to dry for a time in the sun. Another piece is usually worked upon while the first is drying, in order that there may be no delay. The paddle, anvil, and smoothing stones are dropped into the water container to soak for a few moments. When ready to start building up the sides of the vessel, the potter moistens its upper edge, then twists and coils a piece of cloth into a base on which to rest her work.

In beginning the process of coiling, a lump of clay about the size of that used for the base of the vessel is divided in half, each portion being moistened and kneaded thor-

¹ Frank Russell, *The Pima Indians* (Bureau of American Ethnology. Twenty-sixth Annual Report, 1904-05. Washington, Government Printing Office, 1906).

323 oughly. Taking a piece of the damp clay between the palms of her hands, the worker deftly rolls it into a coil just long enough to reach halfway around the top of the vessel. This is pinched into place with the wet hand. A similar coil completes the circuit. The anvil is now held in the left hand and supports the interior wall of the vessel, while the paddle rapidly strikes the exterior and smooths the coil into place. The upper edge is pinched off with the wet fingers until it is of an even height all the way around. After the addition of each completed coil, the piece is set aside to dry until it retains its shape.

When a sufficient number of coils has been added, the walls are sloped up with the handle of the paddle and the hands. The smoothing is done with a pebble dipped frequently in water. After the vessel has dried thoroughly in the sun, it is ready to be slipped. This slip is made by pouring off most of the water used for moistening the clay, dipping the hands, tools, etc., and applying to the vessel the fine wet sediment which remains in the bottom of the container.

A somewhat heavier slip is made from a very fine-grained red clay (or possibly shale, rather than clay) which apparently contains a high percentage of hematite. This material is obtained from the mountains near by, ground up, mixed with water, and applied with a piece of rag. In general, the thinner type is employed as a wash on ollas or on cooking pots which are subjected to heat, and the finer, thicker mixture on the others. After the application of the slip and a final polishing, the vessel is ready for firing.

A shallow pit is dug and exposed to the air and sun, usually for a day, to drive out all traces of moisture. Small branches and chips of mesquite are burned to form a layer of coals and ashes. On this are arranged pieces of tin to support the vessels. The latter are placed mouth downward upon the tin and covered with pieces of the same metal. Sticks of mesquite about a foot in length are stood up on end and rested against the tin, and the whole covered with chips and small branches. The firing process takes about 20 minutes, then the ashes are knocked off, the tin removed, and the vessels lifted out with two long sticks and set aside to cool. When they first emerge from the pit, they are a rich chocolate brown, but upon cooling, soon change to dull red. Probably prior to white contact, the pottery was fired in much the same manner as that practiced by the Pima. Possibly large fragments of broken ollas or jars took the place of the tin.

323 When the vessels have cooled sufficiently to permit handling, the black decoration is applied. The paint for this is made by boiling down mesquite gum and chips of the wood. When finished, it is a thin brown liquid which is applied by means of small sharp-pointed sticks. The decorated vessel is then held in the heat and slowly revolved until the paint turns black and sets. This completes the process.

323 The olla or water jar appears to be the most-used article among the present-day
415 Papa'go. Many were observed beneath the ramadas of the houses, sometimes suspended
[352] from the cross-beams, sometimes placed in three-forked logs set upright in the ground. The majority of those now used are of a plain, unslipped earthenware in the natural color of the clay. Apparently a thin reddish wash is sometimes applied to the exterior.
[531] Several large storage ollas of a grayish or brownish buff, decorated in a brownish red and very suggestive of ancient Hohokam ware, were observed. Smaller black cooking pots with convex bottoms are still to be found. This black color is due to a deposition of soot from the fire, rather than to the natural color of the clay. Bowls and cups are likewise used at times. The writer was also shown several human figures, chiefly male,
[534] which had been made in neighboring villages.

BRIEF COMMUNICATIONS

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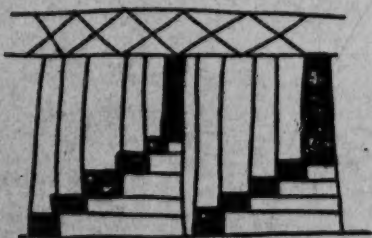
In the Arizona State Museum at Tucson are bowls of two kinds—one a shallow 323 ● type with straight sides, and the other smaller, with a more rounded outline. Additional forms include straight-sided jars, a zoomorphic vessel in the shape of a duck (?),



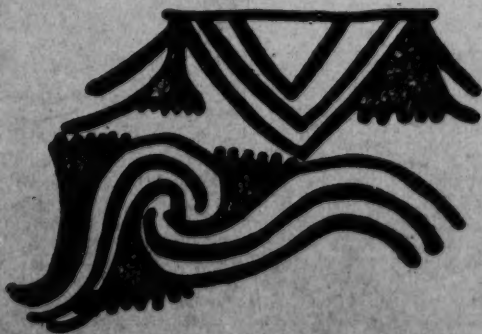
[531]



Designs on Modern Papago pottery



[531
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Designs on old Papago pottery

and often somewhat larger than those observed at Santa Rosa. Some of these examples represent modern types. The widespread use of pottery among the Papago has been greatly modified since the entry of American settlers into the neighboring regions. [77]

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inches wide made of fox skin (*Vulpes fulvus*) with the hair ⁴¹¹~~415~~ left on to prevent chafing.

The Papagos at present say that certain of the bravest men fought with club and shield, and a club is mentioned for the "Pimas" in early Spanish accounts (10, 27). The club was of ironwood (*Olneya tesota*) about eighteen inches long, and informants say that it was merely a roughly shaped length of wood with a thong run through a perforation in the upper end so that it could be carried. The shield was a disk of leather sixteen inches in diameter made of cowhide or horsehide. Ownerless cows and horses have roamed the country ever since the coming of the first Spaniards, and the Papagos hunted these like deer.

The customary way of making the shield was to soak the hide in water, then cut out the disk and lay it on hot ashes to harden, stamping it into a slightly convex shape, two holes first being punched near the center about six inches apart. When dry a thong was laid along the outside of the shield, its two ends passing to the inside through these holes. On the inside was a short stick of wood with notched ends to which the thong ends were tied, forming a handle. When dry the shield was painted with mesquite ^[53] "gum" (*Prosopis velutina*) prepared as for pots, or with red and white clay.

FIRE

Fire was made with the palm drill; the heart of a *cac-* ³⁷² *tus* rib (*Carnegia gigantea*) was held with the feet while the drill of creosote bush wood (*Covillea glutinosa*) or arrow bush (*Pluchea sericea*) was revolved between the palms. A little sawdust from dry sahuaro rib caught the spark which was transfered to a pile of dry grass and manure.

POTTERY, EATING AND DRINKING VESSELS

Although a few old pottery jars appear to have lines ³²³ in red ochre at present all decorations are in black. This ⁴¹⁵ black is usually made from the secretion of the mesquite ³⁵⁶

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386 bush (*Prosopis velutina*), which is scraped off in summer after the rains, made into balls and stored. When needed for use these balls are boiled in water, strained through a cloth, boiled again until syrupy, and applied with the tip of a feather. The informants stated that the use of this substance was learned from the Maricopas.

[17] 323 In the making of pottery two paddles are used, usually of mesquite wood (*Prosopis velutina*), one for the bottom and one for the sides of the jar. The one for the bottom is shaped like our butter paddles while the one used for the sides is shaped like a cleaver. Among the Papagos pottery is not coiled as is the case among the Pueblo Indians, but is always paddled into shape.

415 Drinking cups are usually made of gourds (*Lagenaria vulgaris*), although small baskets might also be used. Gourd drinking cups are made of the gourd fruit cut in two longitudinally while fresh, the pulp and seeds removed and the hollow hemispherical halves then dried. A hole is punched in the shells and they are then strung on a man's belt with a buckskin thong. Often they are the only eating and drinking vessels on journeys.

Another vessel is furnished by the giant cactus (*Carnegiea gigantea*). When the surface of this plant is bruised such as by the pecking of woodpeckers the plant responds by covering the wound with a hard scar. This scarred area is sometimes rather large and deep, forming a natural cup-shaped structure which is used by the Papagos as a dish or a tobacco pouch. These dishes are eagerly collected and most households have an assortment of them.

Russell (22) refers to the Pima as obtaining small wooden trays and plates—circular, elliptical, and rectangular—from the Papagos. He also refers to the Papagos as making ladles of palo verde wood (*Parkinsonia microphylla*). These are probably Mexican in origin.

Schuchk contains but three permanent co-resident groups. There are no churches. During the school year the cook and maintenance man live here. There is a telephone for general use of the district, and, there is a permanently residing pair of Anglo families. Thus, with its phone, its school, its central location for the district council, Schuchk may be classified as a service center but not a village.

Tat Momoli (Jackrabbi) and Shopishk (Sif Cidak District). According to two informants living in Gu Komelik, Tat Momoli contains but three families. There is a church, but no feast house. The entry road is in very poor condition and the Catholic priest seldom visits the village.

Only two people live in Shopishk according to one informant. There is no church and few people visit this place. Nevertheless, a woman lives here who is somewhat famous for her pottery.

In addition to the above settlements, there are about 100 locations which are occupied either permanently or temporarily for a wide variety of purposes. In most instances, they are used by people engaged in stock raising, or in a combination of stock raising and farming who must live more or less permanently near their holdings. It must be recalled that the main Papago Reservation is an area of 4,328 square miles with relatively few miles of improved roads. Some other localities are used temporarily or